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2003 NASA Seal/Secondary Air System Workshop

September 2004

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Proceedings of a conference held at Ohio Aerospace Institute
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Cleveland, Ohio
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13. ABSTRACT ***(Maximum 200 words)***

The 2003 NASA Seal/Secondary Air System Workshop covered the following topics: (i) Overview of NASA's perspective of aeronautics and space technology for the 21st century; (ii) Overview of the NASA-sponsored Low Emissions Alternative Power (LEAP), Ultra-Efficient Engine Technology (UEET), Turbine-Based Combined-Cycle (TBCC), and Revolutionary Turbine Accelator (RTA) programs; (iii) Overview of NASA Glenn's seal program aimed at developing advanced seals for NASA's turbomachinery, space propulsion, and reentry vehicle needs; (iv) Reviews of advanced sealing concepts, test results, experimental facilities, and numerical predictions; and (v) Reviews of material development programs relevant to advanced seals development. The NASA UEET and TBCC/RTA program overviews illustrated for the reader the importance of advanced technologies, including seals, in meeting future turbine engine system efficiency and emission goals. For example, the NASA UEET program goals include an 8- to 15-percent reduction in fuel burn, a 15-percent reduction in CO_2, a 70-percent reduction in NO_x, CO, and unburned hydrocarbons, and a 30-dB noise reduction relative to program baselines. The workshop also covered several programs NASA is funding to investigate advanced reusable space vehicle technologies and advanced space ram/scramjet propulsion systems. Seal challenges posed by these advanced systems include high-temperature operation, resiliency at the operating temperature to accommodate sidewall flexing, and durability to last many missions.

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